

CLAIMS

What is claimed is:

1           1.    A method, comprising:  
2           allocating a plurality of registers;  
3           enabling execution of computer instructions concurrently  
4    by using the plurality of registers; and  
5           tracking and reducing data dependencies in the computer  
6    instructions by correlating busy condition of a computer  
7    instruction to each register.

1           2.    The method of claim 1, wherein said enabling  
2    includes enabling execution of the computer instructions out  
3    of order.

1           3.    The method of claim 1, further comprising:  
2           allocating a plurality of register files, each register  
3    file including the plurality of registers, the plurality  
4    register files enabling keeping copies of register contents.

1           4.    The method of claim 3, further comprising:  
2           maintaining a select register that tracks a currently  
3    used register file.

1           5.    The method of claim 3, further comprising:  
2           maintaining a free file list that tracks currently  
3           available register files.

1           6.    The method of claim 1, wherein said allocating,  
2           enabling, and tracking includes substantially reducing  
3           computer instruction stalls due to data dependencies.

1           7.    The method of claim 1, wherein said correlating  
2           busy condition of a computer instruction to each register  
3           includes providing each register with a corresponding  
4           scoreboard bit.

1           8.    A method, comprising:

2           allocating a plurality of register files if there are  
3           any pending writes in a currently used register file, each  
4           register file including a plurality of registers;

5           maintaining a select register that tracks the currently  
6           used register file;

7           enabling execution of computer instructions concurrently  
8           by using the plurality of register files; and

9           tracking and reducing data dependencies in the computer  
10          instructions by correlating busy condition of a computer  
11          instruction to each register.

1        9.    The method of claim 8, further comprising:  
2        maintaining a free file list that tracks currently  
3        available register files.

1        10.   The method of claim 8, wherein said allocating,  
2        enabling, and tracking includes substantially reducing  
3        computer instruction stalls due to data dependencies.

1        11.   A computer readable medium containing executable  
2        instructions which, when executed in a processing system,  
3        causes the system to perform concurrent execution of computer  
4        instructions, comprising:  
5        allocating a plurality of registers;  
6        enabling execution of computer instructions concurrently  
7        by using the plurality of registers; and  
8        tracking and reducing data dependencies in the computer  
9        instructions by correlating busy condition of a computer  
10       instruction to each register.

1        12.   The medium of claim 11, wherein said enabling  
2        includes enabling execution of the computer instructions out  
3        of order.

1        13. The medium of claim 11, further comprising:  
2            allocating a plurality of register files, each  
3        register file including the plurality of registers, the  
4        plurality register files enabling keeping copies of  
5        register contents.

1        14. A system, comprising:  
2        a plurality of register files, each register file  
3        comprising:  
4            a plurality of predicate registers to enable  
5        execution of computer instructions concurrently and out  
6        of order; and  
7        a plurality of scoreboard registers to track data  
8        dependencies among the computer instructions.

1        15. The system of claim 14, further comprising:  
2        a select register to select a current register file from  
3        the plurality of register files.

1        16. The system of claim 15, wherein the select register  
2        includes a pointer.

1        17. The system of claim 14, further comprising:  
2        a free file list to maintain a list of available  
3        register files.

1           18. The system of claim 17, wherein the free file list  
2 includes a pointer.

1           19. The system of claim 17, wherein the free file list  
2 includes a stack.

11/11/2019 10:11:11 AM